UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/788,831 | 02/28/2004 | Kyung-Ju Choi | ZM921/04004 | 7345 |

27868 7590 12/20/2005

JOHN F. SALAZAR
MIDDLETON & REUTLINGER
2500 BROWN & WILLIAMSON TOWER
LOUISVILLE, KY 40202

| EXAMINER | |
|---|---|
| DEL SOLE, JOSEPH S | |
| **ART UNIT** | **PAPER NUMBER** |
| 1722 | |

DATE MAILED: 12/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/788,831 | CHOI, KYUNG-JU | |
| | Examiner | Art Unit | |
| | Joseph S. Del Sole | 1722 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *30-49* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *30-49* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 January 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Objections*

1. Applicant is advised that should claim 41 be found allowable, claims 41-44 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k). The Examiner notes that the claims are substantial duplicates because the claims do not structurally distinguish between first and fourth cross-sectional quadrants and also because an application of force in either the same or opposite directions is a process limitation and also does not structurally define the apparatus.

2. Claims 37 and 38 are objected to because of the following informalities: **a)** claim 37 is grammatically incorrect because "to the said at least two longitudinally extending" at line 6 indicates a plurality, but it is followed by "rotatable collector" at line 7 which is singular; and **b)** claim 38 contains two periods and as such "collectors.is" should be changed to --collectors is--. Appropriate correction is required.

### *Drawings*

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, each of the **a)** "one layered mat diverting apparatus positioned externally of one of said die sources to apply an external vortically creating force" (claim 30); **b)** "at least one small collector diverter

positioned in spaced relation to one of said die source to apply an external vortically creating force" (claim 32) and **c)** "perforated collector surface" (claim 34) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Claim Rejections - 35 USC § 112*

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 30-32, 37,42 and 43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 30 and 32 are vague and indefinite because the limitation "similarly rotating collector surface" is unclear (at lines 6 and 11 of claim 30 and lines 7 and 9 of claim 32). One would not know to what the surface is similar.

Claim 37 is vague and indefinite because it is unclear whether there is just one vortically force creating rotational cylindrical drum or if there are two. Lines 2-3 of claim 37 appear to indicate that there is just one. Lines 5-7 of claim 37 appear to indicate that there are two.

Claim 42 is vague and indefinite because the structural difference between "a fourth cross-sectional quadrant" and "a first cross-sectional quadrant" is unclear.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 30, 33 and 41-46 are rejected under 35 U.S.C. 102(b) as being anticipated by Barboza et al (5,681,469).

Barboza et al teach an apparatus for manufacturing a fibrous mat having a first die source (Fig 1, #22) including spaced die orifices capable of feeding a first attenuated multiple fibered layered portion; a first selectively gap spaced longitudinally extending

first rotating collector surface (Fig 1, #23) to receive the first layered portion; a spaced second die source (Fig 1, #16) including spaced die orifices capable of feeding a second attenuating multiple fiber layered portion; a second gap spaced longitudinally extending second rotating collector surface (Fig 1, #12) to receive the second fiber layered portion, the second rotating collector surface being spaced from the first rotating collector surface; and transfer and orientation means positioned between the first and second collector surface to orient and transfer the first layered mat portion from the first rotating collector surface to the second rotating collector surface (Fig 1, that which enables the materials that start on #23 to end up entirely with #12); a motor and gear driven system in mechanical communication with each of the at least two longitudinally extending cylindrical rotatable collectors providing a rotation force to each of the at least two longitudinally extending cylindrical rotatable collectors (Fig 1, that which rotates the cylinders); at least one longitudinally extending idle roller (Fig 1, #14), wherein at least one of the at least one longitudinally extending idle roller is positioned between each of the at least two longitudinally extending cylindrical rotatable collectors; each of the at least two spaced successive melt blown die sources is aligned above a first or fourth cross-sectional quadrant (such relativeness of quadrants is not clearly defined as discussed above) of each of the at least two longitudinally extending cylindrical rotatable collects and each of the at least two longitudinally extending cylindrical rotatable collectors have the rotation force applied thereto in a common direction (Fig 1, relative to the point nearest contact of the rollers, each roller is rolling into the paper) or into an opposite direction (Fig 1, one is rotating clockwise, the other counterclockwise); and a

work station is positioned downstream from a final of the at least two longitudinally extending cylindrical rotatable collectors (Fig 1).

8. Claims 30-33, 37-38 and 41-46 are rejected under 35 U.S.C. 102(b) as being anticipated by Frickert et al (2,875,503).

Frickert et al teach an apparatus for manufacturing a fibrous mat having a first die source (Fig 1, at Stage 1) including spaced die orifices capable of feeding a first attenuated multiple fibered layered portion; a first selectively gap spaced longitudinally extending first rotating collector surface (Fig 1, either #22 of stage 1) to receive the first layered portion; a spaced second die source (Fig 1, at Stage 2) including spaced die orifices capable of feeding a second attenuating multiple fiber layered portion; a second gap spaced longitudinally extending second rotating collector surface (Fig 1, #s 26-30 of Stage 2) to receive the second fiber layered portion, the second rotating collector surface being spaced from the first rotating collector surface; and transfer and orientation means positioned between the first and second collector surface to orient and transfer the first layered mat portion from the first rotating collector surface to the second rotating collector surface (Fig 1, #s 26-30 of Stage 1); at least one layered mat diverting apparatus positioned externally of one of the die source to apply an external vortically creating force on part of one of the fiber layered portions before the portion reaches the cooperative rotating collecting source for the layered portion (Fig 1, the other of #22 in Stage 1); a motor and gear driven system in mechanical communication with each of the at least two longitudinally extending cylindrical rotatable collectors providing a rotation force to each of the at least two longitudinally extending cylindrical

rotatable collectors (Fig 1, that which rotates the cylinders); at least one longitudinally extending idle roller (Fig 1, and of #s 26-30), wherein at least one of the at least one longitudinally extending idle roller is positioned between each of the at least two longitudinally extending cylindrical rotatable collectors; each of the at least two spaced successive melt blown die sources is aligned above a first or fourth cross-sectional quadrant (such relativeness of quadrants is not clearly defined as discussed above) of each of the at least two longitudinally extending cylindrical rotatable collects and each of the at least two longitudinally extending cylindrical rotatable collectors have the rotation force applied thereto in a common direction or into an opposite direction (Fig 1, relative to which of the #s22 are viewed as the cylinder); and a work station is positioned downstream from a final of the at least two longitudinally extending cylindrical rotatable collectors (Fig 1); the at least one of the said at least one longitudinally extending idler rollers positioned between each of the at least two longitudinally extending cylindrical rotatable collectors is three idle rollers arranged in a substantially triangular configuration (Fig 1, #s 26-30 of Stage 2).

9. Claims 30-33, 37-38 and 41-46 are rejected under 35 U.S.C. 102(b) as being anticipated by Loubinoux et al (5,425,796).

Loubinoux et al teach an apparatus having a first die source (Fig 1, #7) including spaced die orifices capable of feeding a first attenuated multiple fibered layered portion; a first selectively gap spaced longitudinally extending first rotating collector surface (Fig 1, 9) to receive the first layered portion; a spaced second die source (Fig 1, #7) including spaced die orifices capable of feeding a second attenuating multiple fiber

layered portion; a second gap spaced longitudinally extending second rotating collector surface (Fig 1, # 19) to receive the second fiber layered portion, the second rotating collector surface being spaced from the first rotating collector surface; and transfer and orientation means positioned between the first and second collector surface to orient and transfer the first layered mat portion from the first rotating collector surface to the second rotating collector surface (Fig 1, #s 12-17); at least one layered mat diverting apparatus positioned externally of one of the die source to apply an external vortically creating force on part of one of the fiber layered portions before the portion reaches the cooperative rotating collecting source for the layered portion (Fig 1, #4); a motor and gear driven system in mechanical communication with each of the at least two longitudinally extending cylindrical rotatable collectors providing a rotation force to each of the at least two longitudinally extending cylindrical rotatable collectors (Fig 1, that which rotates the cylinders); at least one longitudinally extending idle roller (Fig 1, #s 12-17), wherein at least one of the at least one longitudinally extending idle roller is positioned between each of the at least two longitudinally extending cylindrical rotatable collectors; each of the at least two spaced successive melt blown die sources is aligned above a first or fourth cross-sectional quadrant (such relativeness of quadrants is not clearly defined as discussed above) of each of the at least two longitudinally extending cylindrical rotatable collects and each of the at least two longitudinally extending cylindrical rotatable collectors have the rotation force applied thereto in a common direction (Fig 1, relative to the point nearest contact of the rollers, each roller is rolling upwards) or into an opposite direction (Fig 1, one is rotating clockwise, the other

counterclockwise); and a work station is positioned downstream from a final of the at least two longitudinally extending cylindrical rotatable collectors (Fig 1); the at least one of the said at least one longitudinally extending idler rollers positioned between each of the at least two longitudinally extending cylindrical rotatable collectors is three idle rollers arranged in a substantially triangular configuration (Fig 1, #s 12-14 or 15-17).

10. Claims 30, 33-36 and 41-48 are rejected under 35 U.S.C. 102(b) as being anticipated by Nishino et al (5,628,844).

Nishino et al teach an apparatus having a first die source (Fig 3, #31) including spaced die orifices capable of feeding a first attenuated multiple fibered layered portion; a first selectively gap spaced longitudinally extending first rotating collector surface (Fig 3, #30) to receive the first layered portion; a spaced second die source (Fig 3, #34) including spaced die orifices capable of feeding a second attenuating multiple fiber layered portion; a second gap spaced longitudinally extending second rotating collector surface (Fig 3, # 33) to receive the second fiber layered portion, the second rotating collector surface being spaced from the first rotating collector surface; and transfer and orientation means positioned between the first and second collector surface to orient and transfer the first layered mat portion from the first rotating collector surface to the second rotating collector surface (Fig 3, # 37);; a motor and gear driven system in mechanical communication with each of the at least two longitudinally extending cylindrical rotatable collectors providing a rotation force to each of the at least two longitudinally extending cylindrical rotatable collectors (Fig 3, that which rotates the cylinders); at least one longitudinally extending idle roller (Fig 3, the rightmost roller

within #33), wherein at least one of the at least one longitudinally extending idle roller is positioned between each of the at least two longitudinally extending cylindrical rotatable collectors; each of the at least two longitudinally extending cylindrical rotatable collectors has a perforated surface, an internal coolant and a vacuum source in flow communication thereto (Fig 3, #s 41 and 43, the Examiner notes that the claimed vacuum must have perforations for flow therethrough and that vacuum has a cooling affect); each of the at least two spaced successive melt blown die sources is aligned above a first or fourth cross-sectional quadrant (such relativeness of quadrants is not clearly defined as discussed above) of each of the at least two longitudinally extending cylindrical rotatable collects and each of the at least two longitudinally extending cylindrical rotatable collectors have the rotation force applied thereto in a common direction (Fig 1, relative to the point nearest contact of the rollers, each roller is rolling upwards) or into an opposite direction (Fig 1, one is rotating clockwise, the other counterclockwise); and a work station is positioned downstream from a final of the at least two longitudinally extending cylindrical rotatable collectors (Fig 1); the at least one of the said at least one longitudinally extending idler rollers positioned between each of the at least two longitudinally extending cylindrical rotatable collectors is three idle rollers arranged in a substantially triangular configuration (Fig 1, #s 12-14 or 15-17).

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

> invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

13. Claims 39, 40 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over any of Barboza et al (5,681,469), Frickert et al (2,875,503), Loubinoux et al (5,425,796) or Nishino et al (5,628,844).

Barboza et al, Frickert et al, Loubinoux et al and Nishino et al teach the apparatus as discussed above.

Barboza et al, Frickert et al, Loubinoux et al and Nishino et al each fail to teach the specific distances claimed.

Each of Barboza et al, Frickert et al, Loubinoux et al and Nishino et al teach gaps between the collectors and the die sources for the purposes of enabling some cooling and solidification of the molten material exiting the die sources.

It would have been obvious to one having ordinary skill in the art at the time of the Applicant's invention to have modified the inventions of Barboza et al, Frickert et al, Loubinoux et al or Nishino et al with the distances claimed because such distances would have been easily determined by routine experimentation in order to produce the best results dependent on the particular composition of the material worked upon.

### *References of Interest*

14. Choi (6,908,294) and Choi (6,596,205) are cited of interest to show the state of the art.

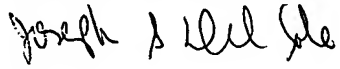
Choi ('294) and Choi (6,596,205) teach the use of the application of a vortically creating force.

### *Correspondence*

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Joseph S. Del Sole whose telephone number is (571) 272-1130. The examiner can normally be reached on Monday through Friday from 8:30 A.M. to 5:00 P.M.

If attempts to reach the Examiner by telephone are unsuccessful, Mr. Duane Smith can be reached at (571) 272-1166. The official fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306 for both non-after finals and for after finals.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from the either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 886-217-9197 (toll-free).



Joseph S. Del Sole
December 15, 2005